UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OHB2002-0012-FEC

April 26, 2002

Mr. Lawrence C. Evans
Regulatory Branch Chief
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the Coast Fork Willamette River (South Bound) Bridge and the Lower Perry Interchange (Grande Ronde River) Bridges Replacement Project.

Dear Mr. Evans:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Coast Fork Willamette River Bridge Replacement Project in Lane County, Oregon, and the Lower Perry Interchange Bridges Replacement Project in Union County, Oregon. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River chinook salmon (*Oncorhynchus tshawytscha*), Snake River spring/summer chinook salmon (*O. tshawytscha*), and Snake River Basin steelhead (*O. mykiss*), or destroy or adversely modify designated critical habitats. As required by section 7 of the ESA, NMFS has included reasonable and prudent measures with nondiscretionary terms and conditions that NMFS believes are necessary to minimize the potential for incidental take associated with these actions.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).

If you have any questions regarding this consultation, please contact Jim Collins (541.957.3389) of my staff in the Oregon Habitat Branch.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Rose Owens - ODOT
Max Mizejewski - ODOT
Ken Franklin - ODOT

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Coast Fork Willamette River Bridge Replacement Project
Lane County, Oregon
and
Lower Perry Interchange Bridges Replacement Project
Union County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	April 26, 2002
Issued by:	for Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**OHB2002-0012-FEC**

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1. ENDANGERED SPECIES ACT

1.1 Background

On March 11, 2002, the National Marine Fisheries Service (NMFS) received two biological assessments (BAs) and requests from the U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation for the permitting of the Coast Fork Willamette River Bridge Replacement Project and Lower Perry Interchange Bridges Replacement Project proposed by the Oregon Department of Transportation (ODOT). The Coast Fork Willamette River Bridge Replacement Project will replace the existing, functionally- and structurally-obsolete Interstate Highway 5 (I-5) south-bound bridge over the Coast Fork Willamette River. The south-bound Coast Fork Willamette River Bridge is approximately 1.5 km north of Cottage Grove in Lane County, Oregon. The Lower Perry Interchange Bridges Replacement Project will replace the west- and east- bound bridges on Interstate 84 (I-84) over the Grande Ronde River, with two new, wider structures. The two bridges are located 3.5 km west of La Grande in Union County, Oregon. This biological opinion (Opinion) is based on the information presented in the two BAs and discussions with the applicant.

The COE has determined that Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) are reasonably likely to occur within the project area of the Coast Fork Willamette River Bridge Replacement Project. The UWR chinook salmon were listed as threatened under the ESA on March 24, 1999 (64 FR 14308), critical habitat was designated on February 16, 2000 (65 FR 7764), and protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 1, 2000 (65 FR 42422). Designated critical habitat includes all river reaches accessible to listed chinook salmon in the Willamette River and its tributaries above Willamette Falls downstream to the mouth of the Columbia River at a straight line connecting the west end of the Clatsop Jetty and the west end of the Peacock Jetty upstream to and including the Willamette River in Oregon. Excluded are areas above specific dams or above longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for at least several hundred years).

The COE has determined that both the Snake River (SR) spring/summer-run chinook salmon (*O. tshawytscha*) and the SR Basin steelhead (*O. mykiss*) are reasonably likely to occur within the project area of the Lower Perry Interchange Bridges Replacement Project. The SR spring/summer-run chinook salmon were listed as threatened under the ESA on April 22, 1992 (57 FR 14653), critical habitat was designated on December 28, 1993 (58 FR 68543), and protective regulations were issued under section 4(d) of the ESA on April 22, 1992 (57 FR 14653). Designated critical habitat includes all river reaches accessible to listed chinook in all river reaches in the Columbia River from a straight line connecting the west end of the Clatsop Jetty and the west end of the Peacock Jetty and including all Columbia River estuarine areas and river reaches proceeding upstream to the confluence of the Columbia and the Snake Rivers; all Snake River reaches from the confluence of the Columbia River upstream to the Hells Canyon dam. Excluded from critical habitat are those reaches upstream of impassible natural waterfalls, and Dworshak and Hells Canyon dams.

SR Basin steelhead were listed as threatened under the ESA on August 18, 1997 (62 FR 43937), critical habitat was designated on February 16, 2000 (65 FR 7764), and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Designated critical habitat includes all river reaches accessible to listed steelhead in all river reaches in the Snake River and its tributaries in Idaho, Oregon, and Washington. Also included are adjacent riparian zones, as well as river reaches and estuarine areas in the Columbia River from a straight line connecting the west end of Clatsop Jetty and the west end of Peacock Jetty upstream to the confluence with the Snake River. Excluded from critical habitat are tribal lands and areas above specific dams or above longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for at least several hundred years).

This Opinion is based on the information presented in the BAs and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the actions to demolish and remove the existing structures and construct new structures are likely to jeopardize the continued existence of the UWR chinook salmon, SR spring/summer-run chinook salmon, and the SR Basin steelhead, or destroy or adversely modify their critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402. The COE, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed actions are likely to adversely affect UWR chinook salmon, SR spring/summer-run chinook salmon and SR Basin steelhead.

1.2 Proposed Actions

The proposed actions analyzed in this Opinion are described in the Coast Fork Willamette River Bridge Replacement and Lower Perry Interchange Bridges Replacement Project BAs. Both projects are being pursued as design/build bridges. Usually ODOT designs the project before awarding it to the lowest bidding contractor. Under the design/build process the successful contractor would design and build the project. ODOT would provide best management practices (BMP's), guidelines and restrictions to the contractor to ensure that the contractor's design meets ODOT requirements while avoiding and minimizing environmental impacts. ODOT has taken two approaches to provide information to the contractor on how to design the new bridges. ODOT has prepared a baseline concept bridge plan for each bridge. Because of the design/build process, the contractor may or may not build a structure similar to ODOT's baseline design concept. NMFS is not consulting on any design that does not fully comply with the ODOT design build guidelines. NMFS cannot conduct an analysis of the risk of jeopardy to listed salmonids resulting from undisclosed designs that the contractor may decide to use to build the bridges. The following analysis conducted in this Opinion is based on the design build guidelines proposed by ODOT.

Measures taken by ODOT to avoid and minimize environmental impacts at both project sites. The BAs outline restrictions (Coast Fork Willamette River Bridge Project (pp. 6-10) and Lower Perry Interchange Bridges Project (pp. 7-11)) that apply to the projects, providing direction as to what would constitute an acceptable design. Some of the restrictions address environmental

concerns related to the project sites. These restrictions address concerns such as: Restriction of the waterway, stormwater, bridge removal, and temporary ground disturbance. The BAs also contain conservation measures including: Erosion and sediment control, stormwater treatment, in-water work restrictions, and material and vehicle staging restrictions.

1.3 Coast Fork Willamette Bridge Replacement

The Coast Fork Willamette Bridge Replacement Project is designed to replace the southbound I-5 bridge over the Coast Fork Willamette River, located 1.5 km north of Cottage Grove in Lane County, Oregon. I-5 links the major cities of the Willamette Valley with southern Oregon. The highway crosses the Coast Fork Willamette River via two two-lane bridges, one each for north and south bound traffic. In 2000, the average daily traffic (ADT) figure for this roadway was estimated to be approximately 37,000 vehicles (ODOT 2001). Truck volume is between 30 and 40 percent of the ADT.

The purpose for replacing the existing southbound bridge is that the structure has substandard width and rail, and substandard seismic design. The bridge is restricted in its load-carrying capacity. The bridge was constructed in 1955 and was designed with a 50-year life span. Recent rapid deterioration has necessitated several temporary maintenance repairs over the last 2 years. The design life of these repairs are 5 to 15 years.

There are two baseline design concepts identified for the Coast Fork Willamette River Bridge Replacement Project. Both design options are five-span structures, which would provide fewer bents within the ordinary high water mark (OHW) and associated wetlands than currently exist, and would be slightly higher and longer than the existing structure. Stormwater would be routed to the ends of the bridge and treated before entering the waterway, whereas the existing structure has scuppers that drain directly into the waterway. Both baseline concept bridges meet the project needs for the Coast Fork Willamette River location. The contractor may choose to design and build something similar to the baseline concept bridges. However, the contractor could propose and build something completely different. For this reason ODOT has assumed that the entire project area would potentially be impacted for the reasonable worst case scenario.

The project area includes everything within the ODOT right- of- way (ROW), from 400 meters north of the north bridge abutment to 400 meters south of the south bridge abutment. All staging and construction activities would occur within ODOT ROW. No construction would occur east of the existing northbound bridge. To minimize the risk of introducing hazardous materials to the waterway and wetlands all construction staging would occur at least 45 meters from the OHW. Construction staging would potentially occur on the southeast quadrant of the ODOT ROW in a cleared field. There is an existing access road from the field under the I-5 bridges.

All work within the OHW would be completed during the Oregon Department of Fish and Wildlife's (ODFW) recommended in-water work period (June 1 to October 31). To further reduce the potential impacts all work would be isolated from the wetted channel.

All impacted areas would be restored to pre-work conditions. Damaged streambanks would be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation. All exposed soil surfaces, including construction access roads and associated staging areas, would be stabilized with mulch, seeded with native herbaceous plants, and native woody vegetation. Woody vegetation removed during construction would be replanted at a 1.5: 1 ratio. Areas requiring revegetation would be replanted between October 15 and April 15. Mitigation plantings would be monitored for three years, achieving 80 percent ground cover after the third year.

Baseline Design 1. For Baseline Design 1 (using a temporary detour bridge in the median), general construction and staging would likely be as follows:

- Stage 1: Build temporary detour bridge in median for southbound traffic.
- Stage 2: Remove old southbound bridge.
- Stage 3: Build wider, longer southbound bridge.
- Stage 4: Remove detour bridge.

Baseline Design #1 would result in a bridge approximately 14.2 meters wide and 176.8 meters long. This option would have an estimated 0.17 hectares of permanent fill associated with the bents within the OHW. The net increase in new impervious surface would be 573 square meters and the total temporary impact area for access roads and construction would be 4,288 square meters. This option would utilize a temporary detour bridge between the two existing structures while the southbound structure is removed and rebuilt. The detour structure would be approximately 9.75 to 13.41 meters wide and 176.8 meters long. The structure would need an estimated 150 piles, with approximately 75 within the OHW. It is possible that a temporary work bridge would be necessary on the west side of the existing structure. The temporary work bridge would be approximately 12 meters wide and 176.8 meters long. The number of piles needed would be approximately the same as the detour bridge. The deck would be sealed to prevent pollutants from entering the waterway.

Baseline Design #2. Baseline Design #2 is analyzed in the BA as the reasonable worst case scenario because it has a larger project footprint. This design option would eliminate the need for a temporary detour bridge and work bridge. The general construction and staging for Baseline Design #2 (building a wider, permanent bridge in the median) would likely be as follows:

- Stage 1: Begin building a wider, permanent bridge in the median. Once this portion of the new bridge is constructed the traffic would be routed from the existing structure to this portion of the new bridge.
- Stage 2: Remove old southbound bridge.
- Stage 3: Continue construction of the new bridge westward for a bridge width of 26.8 meters.

The Baseline Design #2 option would not require a temporary detour bridge or a temporary work structure, but would result in a wider permanent structure. This option would result in a bridge

approximately 26.8 meters wide and 176.8 meters long. The columns would be approximately 1.5 meters wide and 26.8 meters long resulting in 164 square meters of impacts. This would result in an estimated net increase of 154 square meters. The net increase in new impervious surface would be 1,982 square meters and the total temporary impact area for access roads and construction would be 4,410 square meters. All stormwater would be routed off of the bridge where it would be treated in a manner that the project would not result in a change in the hydraulic conditions or an increase of pollutants to the waterway.

The existing south bridge approach fill is above the 100 year floodplain. The existing north bridge approach fill has approximately 26, 779 cubic meters of fill within the 100 year floodplain. This design option would result in roughly 2,057 cubic meters of new fill within the 100 year floodplain. The approaches would be widened to the west approximately 3.96 meters and their height increased 2.13 meters. The increase in width would be necessary to meet current federal highway safety standards and the increased height would be needed to allow larger beams. The larger beams would be needed to allow greater span lengths between bents.

If the larger bridge structure is constructed as shown in the reasonable worst case scenario, then the bridge replacement would cause the permanent loss of shrub-scrub wetland underneath the bridge due to shading impacts. The species diversity would most likely decrease in the wetlands under the bridge. This loss would be compensated for through creation of palustrine shrub/scrub habitat in the proposed wetland mitigation area near the impact site.

To compensate for the long-term impacts to salmonid habitat associated with the Coast Fork Willamette River Bridge Replacement project, ODOT would create approximately 0.43 acre of palustrine shrub-scrub wetland, a 0.2 acre forested wetland, a riverine component of a small cobbled channel (0.34 acre) and an adjacent upland riparian habitat (0.38 acre) for a total of 1.35 acres of mitigation. These areas would be created by reshaping the topography of the mitigation area, in some areas by excavating and removing more than 4 feet of soil from the site. The site is located on the south side of the Coast Fork Willamette River approximately 300 meters west of the I-5 south bound structure. The approximate size of the mitigation site is 1.5 acres. The proposed mitigation site would increase functions and values of the parcel including, flood flow attenuation, wildlife/aquatic habitat, off-channel fish habitat, production export (organic matter), and nutrient transformation.

1.3.1 Lower Perry Interchange Bridges Replacement

The Lower Perry Bridges Replacement Project is designed to replace the north and southbound Interstate 84 (I-84) bridges over the Grande Ronde River, located 3.5 kilometers west of the city limits of La Grande, Oregon at milepost (MP) 257.2. I-84 is the major east-west route connecting Oregon to other western states, paralleling the Grande Ronde River for approximately 12.8 kilometers.

The two bridges have developed shear cracking, which has resulted in structural instability. Bridge repair would not provide an acceptable solution because the light reinforcement in the existing bridges would not support loads over 105,000 pounds. The bridges were built in 1959 and are reaching their design life. Both existing bridges are 8-span concrete girder structures 136.2 meters long and 10.2 meters wide (for a total width of 20.4 meters for both bridges). Currently three bridge bents are located below the ordinary high water mark (OHW), in the active channel of the Grande Ronde River.

The baseline concept calls for two new structures to be constructed side by side. The new bridges would be 130.3 meters long and 12.7 meters wide (for a total width of 25.4 meters) for an area of 3,303 square meters. This would be a net increase of 531 square meters of impervious surface. All stormwater would be routed off the bridge, where it would be treated in a manner such that the project would not result in a change in the hydraulic conditions or an increase of pollutants to the waterway.

The new bridges will be built in stages to maintain two-way traffic during construction. The existing structures are too narrow to allow two-way traffic to be placed on one of the existing bridges temporarily. Additional fill (clean rock) would be necessary for the bridge abutments resulting from the bridge and highway realignment. This fill would be above the 100 year flood elevation. The fill volume for the east abutment has been estimated at 18,289 cubic meters and approximately 34,932 cubic meters of fill will be required for the new eastbound (EB) on-ramp. The fill for the EB ramp will be placed on top of existing fill supporting the ramp. This fill will probably be contained by some sort of retaining wall to keep the project footprint within existing ROW. For the west abutment approximately 30,312 cubic meters of fill will be required. This fill could extend all the way to the ROW line south of the EB bridge. This would potentially remove the small wetland within the ROW on the southwest corner of the EB bridge impacting 384 square meters of wetland habitat.

During the first phase of construction, a new EB structure would be built adjacent to and south (downstream) of the existing EB structure. Once completed, EB traffic would be routed onto the new structure. Westbound (WB) traffic would remain on the existing WB structure. The second phase of construction would consist of the removal of the old EB structure and construction of a new WB bridge in the location of the old EB structure. After traffic was shifted onto the new WB structure, the old WB structure would be demolished during phase three of the project. Essentially, the new bridges and highway alignment would be shifted one bridge width south once construction is completed. If a work structure is necessary it would be located adjacent to the existing structures on the downstream side. The work structure would have an estimated 30 piles within the OHW.

The baseline design concept bridges would have three spans with two interior bridge bents above the OHW on either side of the active channel. Each interior bent would be composed of two columns on spread footings. Each column would be 2.44 meters in diameter and have an area of 4.68 square meters These new bents would permanently remove a total of 19 square metersof riparian habitat. The existing bridge bents would be removed to 600 mm below the surface. The

area occupied by existing bridge bents would be filled with native substrate. There are a total of 14 interior bridge columns for the two existing bridges. These columns are 1.83 meters in diameter with an area of 2.63 square meters. The removal of the six existing columns within the OHW, two of which are within the wetted perimeter, will restore an area of 16 square meters of instream habitat.

All impacted areas would be restored to pre-work conditions. Damaged streambanks would be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation. All exposed soil surfaces, including construction access roads and associated staging areas, would be stabilized with mulch, seeded with native herbaceous plants, and planted native woody vegetation. Woody vegetation removed during construction would be replanted at a 1.5: 1 ratio. Areas requiring revegetation would be replanted between October 15 and April 15. Mitigation plantings would be monitored for three years, achieving 70 percent ground cover after the third year.

All staging and construction activities would occur within the ROW. To minimize the risk of introducing hazardous materials to the waterway and wetlands all construction staging and refueling would occur at least 45 meters from the OHW. There is an existing frontage road under the I-84 bridges.

All work within the OHW would be completed during the Oregon Department of Fish and Wildlife's (ODFW) recommended in-water work period (July 1 to October 15). To further reduce the potential aquatic impacts all work would be isolated from the wetted channel. Construction is scheduled to be completed by December 31, 2004.

To further compensate for the long-term loss of salmonid habitat associated with the Lower Perry Bridges Replacement Project, ODOT would participate in the Longley Meadow Restoration Project. ODOT would install approximately 500 live whip willow bundles along the main stem Grande Ronde River approximately 7.5 kilometers upstream from the project site. The willow bundles would be randomly spaced, averaging approximately 3 meters on center, along the main stem Grande Ronde River to accelerate vegetative recovery. Approximately 2.19 hectares of existing vegetation would be enhanced by planting willow bundles.

1.4 Biological Information and Critical Habitat

Based on migratory timing, listed salmon or steelhead species may be present in the action area during the proposed bridge replacement projects. The proposed actions would occur within designated critical habitat for the listed species.

An action area is defined by NMFS regulations (50 CFR Part 402) as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." Direct affects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the river where

actions described in this Opinion lead to additional activities or affect ecological functions contributing to habitat degradation.

Essential features of the adult and juvenile habitat for these species in the action area are: (1) Substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) cover/shelter, (6) riparian vegetation, (7) food, and (8) passage. The essential features that these proposed projects may affect are substrate, water quality, riparian vegetation, and food.

1.4.1 Coast Fork Willamette River

UWR chinook salmon enter the Columbia River in March or April, but do not ascend Willamette Falls until May or June. Spawning in the upper reaches of the Willamette River basin generally occurs in late August to early October, with spawning peaks in September. Most of the UWR chinook in the Upper Willamette River watershed migrate up the Middle Fork Willamette and McKenzie Rivers. The two rivers provide colder water temperatures which cause UWR chinook to favor them over the Coast Fork Willamette River. Juveniles spend from a few months to one year in fresh water before out-migrating. Due to warmer water temperatures the Coast Fork Willamette River is generally used by adult and juvenile chinook as a migration corridor, although some juvenile rearing does occur in this area.

1.4.2 Grande Ronde River

SR spring/summer-run chinook salmon migrate through the upper Grande Ronde River within the project vicinity between the months of February and July with spawning occurring in the upper reaches of the basin. Juveniles migrate downstream during late February through May. The Grande Ronde River within the proposed project area is primarily used by chinook as a migration corridor and possibly as a juvenile rearing area.

Adult SR Basin steelhead migrate through the upper Grande Ronde River within the project vicinity between the months of February and July and spawning in the upper reaches and tributaries. Juveniles migrate downstream during late February through May. Juvenile steelhead may occur in the project area during the in-water work period but due to high summer water temperatures their presence is not likely.

1.5 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species, and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine if habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon.

1.5.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed chinook and steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon for ESA protection and also considers new available data that is relevant to the determinations.

The relevant biological requirements are those necessary for ESA-listed salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environmental.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and rearing in the project area. The current status of the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon, based upon their risk of extinction, has not significantly improved since the species was listed.

1.5.2 Environmental Baseline

The current range-wide status of the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon is described in Busby et. al. (1996) and Myers et. al. (1998). The identified actions will occur within the range of the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate watersheds where the bridge replacements will occur, the proposed mitigation sites and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term.

For the purposes of this Opinion, the action areas are the channel and adjacent riparian area from about 400 meters upstream from the project and mitigation sites, and downstream 400 meters. Temporary indirect impacts (temperature modification, disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to the Grande Ronde and Coast Fork Willamette River will be caused by the in-water work and general riparian and bank disturbance within the project areas.

The dominant land use in the Coast Fork Willamette River watershed is agriculture, timber harvest, and residential. Much of the Willamette Valley has been converted to agricultural use which has resulted in channelized streams and degraded riparian zones. Agricultural and livestock practices contribute to soil erosion, introduction of non-native vegetation and fertilizer/manure deposition into the stream systems (Myers et al., 1998). The Coast Fork Willamette River is currently on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for toxins, bacteria and temperature (ODEQ, 1999). In addition, the Cottage Grove Dam blocks about 20.0 kilometers of anadromous fish habitat upstream of the proposed project.

The dominant land use in the Grande Ronde River watershed is rural residential, private agriculture, and forestry. Riparian vegetation throughout the basin is heavily impacted by overgrazing, road building, and timber harvest (Busby et. al., 1996). The Grande Ronde River watershed is unique because of its naturally turbid streams and high pH and alkalinity. The watershed is also water-deficient, primarily due to the seasonal pattern of rainfall and the demand for water for irrigation use. Various water quality monitoring within the Grande Ronde River watershed by ODEQ shows degraded water quality regarding temperatures, biological oxygen demand, dissolved oxygen, bacteria, nutrients, and pH levels (ODEQ 1999).

Based on the best available information regarding the current status of the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action areas, NMFS concludes that the biological requirements of the SR spring/summer-run chinook salmon,

SR Basin steelhead and UWR chinook salmon are not currently being met. Degraded habitat resulting from agricultural practices, forestry practices, road building, and residential construction, indicate many aquatic habitat indicators are not properly functioning within the Grande Ronde and Coast Fork Willamette Rivers. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of these species.

1.6 Analysis of Effects

1.6.1 Effects of Proposed Actions

The proposed actions have the potential to cause the following impacts to SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon:

Construction Equipment. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, etc., which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996). To minimize the potential of pollutants entering the waterway construction equipment, materials and refueling would be staged at least 45 meters from the OHW.

Hardened embankments. Impacts to waterways from installation of hardened embankments include simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al*. 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project site and contribute to stream velocity acceleration. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by the diversity of ecological conditions at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, retain bed load materials, and reduce flow velocity.

The most desirable method of bank protection is revegetation. However, revegetation alone can seldom stabilize banks steeper than 3:1 (horizontal:vertical) or areas of high velocity (USACE

1977). Although they are biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of structural measures should be a last resort. Combining structural measures such as sloped riprap, vegetation, and large woody debris (LWD) is preferable to a structural solution without vegetation (USACE 1977). Where riprap is necessary it would be buried under native streambank material to facilitate stream continuity and the growth of woody vegetation.

Sedimentation. Potential sedimentation impacts to listed salmonids from the proposed actions include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting for construction. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Whitman et al. 1982, Gregory 1988), during river bank habitat alterations.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Sigler *et al.* 1984, Lloyd 1987, Scannell 1988). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (e.g., enhanced survival) to the cost of potential physical effects (e.g., reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjorn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding et al. 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible.

Construction related effects necessary to complete the proposed action will be minimized by implementation of effective erosion and pollution control measures and completing all work within the OHW during the ODFW recommended in-water work period. In addition, all work will be isolated from the wetted channel. No construction or construction equipment will enter the wetted channel, except for installation of coffer dams, as a result of the proposed action.

Water Quality Stormwater Effects. Due to an increase of new impervious surface, the potential exists for an increase in runoff from the proposed new impervious surface at both proposed project sites. However, the proposed stormwater runoff treatment criteria will more than offset any potential adverse effects to water quality as a result of the proposed action. The proposed stormwater treatment criteria would require all stormwater to be routed to the end of the bridges where it would be treated in a manner that would not result in a change in the hydraulic conditions or an increase of pollutants to the Coast Fork Willamette and Grande Ronde Rivers.

Stream Hydraulics. The placement of fill material below the OHW would typically result in simplification of habitat and increased stream velocities under the structure. However, based on new design technologies allowing greater span lengths in bridges, the new bridges are likely to have fewer bents within the OHW. Fewer bents within the OHW would result in a net increase of fill within the OHW cross section. Bridge approach fill within the 100 year floodplain can result in a restriction of the floodway causing increased stream velocities during high flows. The increased velocities can facilitate stream degradation downstream to unknown distances. The degradation process begins with increased channel down-cutting and bank erosion. This can result in an increase of fine sediments within the channel substrate as well as a decrease in width to depth ratios. The instream habitat is simplified due to fewer pools and complex cover (Rosgen 1996).

The Coast Fork Willamette River Bridge Project will result in an additional 2,057 cubic meters of fill within the 100 year floodplain. To minimize channel restriction, the new fill at the Coast Fork Willamette River would not reduce the distance between the existing bridge approaches on opposite sides of the river. In addition, the proposed mitigation site immediately upstream of the project site would excavate approximately 5,600 cubic meters of material within the 100 year floodplain to create 0.97 hectares of wetland and off-channel habitat. The excavated material at the mitigation site would off set the 2,057 cubic meters of approach fill. Due to the mitigation

site and minimizing the quantity of fill within the 100 year floodplain significant long-term adverse affects to stream hydraulics as a result of the proposed action are not expected.

There is no new fill proposed at the Lower Perry Interchange Bridges Project site so there are no expected changes in hydrology.

Riparian Vegetation. The removal of berry non-native invasive species of riparian vegetation such as Himalayan blackberry (*Rubus discolor*) and reed canarygrass (*Phalaris arundinacea*) will result in the short-term potential for exposed soils and increased sediment transport to the Coast Fork Willamette River. Woody vegetation that would be cleared at the Lower Perry Interchange Bridges Project would include approximately 50 cottonwoods (*Populus trichocarpa*) ranging between 75 and 300 millimeters diameter at breast height (DBH). However, during construction, erosion control measures and post-project riparian plantings would reduce erosion during construction and restore woody vegetation. All impacted areas would be restored to pre-work conditions. Damaged streambanks would be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation. All exposed soil surfaces, including construction access roads and associated staging areas, would be stabilized mulch, native herbaceous seeding, and native woody vegetation. Woody vegetation removed during construction would be replanted at a 1.5: 1 ratio. Areas requiring revegetation would be replanted between October 15 and April 15. The riparian plantings would provide bank stabilization, shading, and increase the potential for insect production. Mitigation plantings are proposed to be monitored for three years, achieving 80 percent ground cover (70percent at the Lower Perry site) after the third year.

Work Area Isolation and Fish Removal. Bridge bent construction and removal may require work area isolation from the flowing water. Fish removal activities would be in accordance with NMFS fish handling guidelines. Any listed fish removed from the isolated work area would experience high stress with the possibility of up to a 5percent delayed mortality rate depending on rescue method. Work area isolation can result in a loss of aquatic invertebrates due to dewatering areas within the wetted channel. In addition, sediment laden water created within isolated work areas could escape, resulting in impacts to the aquatic environment downstream of the project site.

The adverse effects of these activities on SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon and riparian and aquatic habitats would be avoided or minimized by carrying out construction methods and approaches described in the BAs, provided the contractor follows the proposed design baselines.

1.6.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for SR spring/summer-run chinook salmon, SR Basin

steelhead and UWR chinook salmon consists of all waterways below naturally-impassable barriers including the project areas. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter. Effects on critical habitat from the proposed action are included in the effects description above.

1.6.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." The action area for the Coast Fork Willamette River Bridge Replacement Project has been defined as the Cost Fork Willamette River channel and adjacent riparian area from 400 meters upstream and downstream from the project site. The action area for the Lower Perry Interchange Bridges Replacement Project has been defined as the Grande Ronde River channel and adjancent riparian area from 400 meters upstream and downstream from the construction and mitigation site. Many actions occur within the Grande Ronde and Coast Fork Willamette watersheds, within which the actions areas are found.

Non-federal activities within the action areas are expected to increase with a projected 34 percent increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus NMFS assumes that future private and state actions will continue within the action areas, but at increasingly higher levels as population density increases. NMFS assumes that future COE permitted projects in the Grande Ronde and Coast Fork Willamette River watersheds will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.7 Conclusion

NMFS has determined that, when the effects of the COE's proposed actions (permitting the replacement of the Lower Perry Bridge and the Coast Fork Willamette River Bridge) are added to the environmental baselines and cumulative effects occurring in the action areas, they are not likely to jeopardize the continued existence of the SR spring/summer-run chinook salmon, SR Basin steelhead and UWR chinook salmon, or cause adverse modification or destruction of designated critical habitat. This determination is limited to an analysis of the baseline design guidelines as developed by ODOT. This determination does not apply to any design that the contractor may propose that diverges from those design guidelines. Designs that would diverge from the ODOT developed guidelines are not covered by this opinion and would require reinitiation of consultation by the COE due to the fact that NMFS would have no knowledge of how the bridges would be constructed.

The conclusion for the baseline design guidelines was based on the following considerations: (1) All in-water work and other construction activities within the OHW will take place according to Oregon guidelines for timing of in-water work to protect fish and wildlife resources; (2) work

area isolation (including use of NMFS' guidelines for proper fish handling) and the conservation measures outlined in the BAs will be in place to avoid or minimize adverse affects to water quality; (3) potential flow effects of increased impervious area will be avoided or minimized by water quality treatment and detention before being released into any waterway; (4) trees cleared for construction of the new bridge will be replaced with new riparian plantings; (5) streambanks and riparian areas disturbed by new construction and in the area uncovered by removal of the old bridge will be planted with native woody vegetation. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

1.8 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion, or 4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount and Extent of the Take

NMFS anticipates that the actions covered by this Opinion is reasonably certain to result in incidental take of Snake River spring/summer-run Chinook, Snake River Basin steelhead and Upper Willamette River Spring chinook salmon because of detrimental effects from sediment pulses and increased temperature levels (non-lethal) and the slight possibility of juvenile presence in the vicinity of the project site during in-water work. NMFS expects the possibility exists for incidental take of up to 20 juvenile SR spring/summer-run chinook salmon, 20 juvenile SR Basin steelhead and 20 juvenile UWR chinook salmon during work area isolation and handling of fish. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term and not expected to be measureable in the long term. The extent of take is limited to the action areas.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The Lower Perry and Coast Fork Willamette Bridge Replacement Project BAs include a set of "conservation measures" designed to minimize take of listed species. Specific measures for in-water and bank work, clearing and grubbing, bridge removal, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are included as part of these terms and conditions by reference.

NMFS believes that the following reasonable and prudent measures along with conservation measures described in the BAs are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The COE shall:

1. Minimize the likelihood of incidental take of construction activiites by limiting the time of in-water work as necessary to avoid harming vulnerable salmon life stages, including migration and rearing.

2. Minimize the likelihood of incidental take from in-water work by ensuring that work within the wetted channel is isolated from flowing water.

3. Minimize the amount and extent of incidental take from construction activities in or near the creek through development and implementation of effective erosion and pollution control measures throughout the area of disturbance and for the life of the project.

4. Minimize the amount and extent of take from loss of instream habitat and impacts to critical habitat by implementing measures to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream functions.

5. Minimize the amount and extent of take from stormwater impacts and altered stream hydraulics by implementing measures to treat water and limit fill within the 100 year floodplain.

6. Ensure effectiveness of implementation of the reasonable and prudent measures, all fish handling, erosion control measures, and plantings for site restoration through monitoring and evaluation both during and following construction.

2.3 Terms and Conditions

1. To implement Reasonable and Prudent Measure #1 (in-water timing and minimizing the extend of in-water work), the COE shall ensure:

    a. Construction impacts will be confined to the minimum area necessary to complete the project.

        i. Survey and mark the ordinary high water mark at the project site prior to commencement of work to delineate the permitted work area.
        ii. All work within the active channel that could potentially contribute sediment or toxicants to downstream fish-bearing systems will be completed within the ODFW approved in-water work period.[1]

    b. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NMFS.

    c. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

[1] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish)(http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

2. To implement Reasonable and Prudent Measure #2 (isolation of in-water work area and proper fish handling methods), the COE shall ensure that:

   a. During in-water work (work within the ordinary high water mark) if the project involves either significant channel disturbance or use of equipment within the wetted channel, the work area is well isolated from the active flowing stream within a cofferdam (made out of sand bags, sheet pilings, inflatable bags, etc.) or similar structure, to minimize the potential for sediment entrainment. Furthermore, no ground or substrate disturbing action will occur within the ordinary high water mark 90 meters upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters. After the coffer dam is in place, any fish trapped in the isolation pool will be removed by a permitted ODOT and/or ODFW biologist prior to de-watering, using NMFS guidelines.

   b. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NMFS fish screen criteria.

      i. Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.
      ii. Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.

   c. <u>Fish Salvage</u>

      i. Prior to, and intermittently during, pumping attempts will be made to salvage and release fish from the work isolation area as is prudent to minimize risk of injury. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:

         (1) Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
         (2) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
         (3) Seined fish must be released as near as possible to capture sites.

(4) The transfer of any ESA-listed fish from the applicant to third-parties other than NMFS personnel requires written approval from NMFS.

(5) The applicant must obtain any other federal, state, and local permits and authorizations necessary for the conduct of the seining activities.

(6) The applicant must allow NMFS, or its designated representative, to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.

(7) A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions prior to and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.

ii. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 1998):

(1) Electrofishing may not occur in the vicinity of listed adults in spawning condition or in the vicinity of redds containing eggs.

(2) Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a log.

(3) A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.

(4) Measure conductivity and set voltage as follows:

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

(5) Direct current (DC) must be used at all times.

(6) Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. *In general*, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

(7) The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

(8) The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

(9) Crew must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

(10) Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

(11) The electrofishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, together with observations on fish condition, will improve technique and form the basis for training new operators.

d. Fish Passage. Full passage shall be provided for both adult and juvenile forms of salmonid species throughout the construction period.

3. To Implement Reasonable and Prudent Measure #3 (erosion and pollution control), the COE will ensure that:

a. The Contractor will develop and implement a site-specific spill prevention, containment, and control plan (SPCCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this SPCCP. The plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

i. Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul

roads, equipment and material storage sites, fueling operations and staging areas.

ii. Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

iii. A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

b. Construction discharge water. All discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed 4-feet per second.

iii. Spawning areas, marine submerged vegetation. No construction discharge water may be released within 90 meters upstream of spawning areas or areas with marine submerged vegetation.

c. Treated wood. Projects using treated wood[2] for any structure that may contact flowing water or that will be placed over water are not authorized, except for pilings installed following NMFS' guidelines.[3] Projects that require removal of treated wood will use the following precautions.

i. Treated wood debris. Care must be taken to ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, it must be removed it immediately.

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[2] "Treated wood" means lumber, pilings, and other wood products preserved with alkaline copper quaternary (ACQ), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), copper naphthenate, chromated copper arsenate (CCA), pentachlorophenol, or creosote.

[3] Letter from Steve Morris, National Marine Fisheries Service, to W.B. Paynter, Portland District, U.S. Army Corps of Engineers (December 9, 1998) (transmitting a document titled *Position Document for the Use of Treated Wood in Areas within Oregon Occupied by Endangered Species Act Proposed and Listed Anadromous Fish Species, National Marine Fisheries Service, December 1998*).

ii. Removal of treated pilings. If treated wood pilings will be removed, the following conditions apply.

(1) Pilings must be dislodged with a vibratory hammer.
(2) Once loose, the pilings must be placed onto the construction barge or other appropriate dry storage location, and not left in the water or piled onto the stream bank.
(3) If pilings break during removal, the stump must be removed by breaking or cutting 0.9 meters below the sediment surface, then covered with a substrate appropriate for the site.
(4) All treated wood removed during a project must be disposed of at a facility approved for hazardous materials of this classification.

d. Material removed during excavation will only be placed in locations where it cannot enter streams, wetlands, or other water bodies.

e. During excavation, native streambed materials will be stockpiled above the bankfull elevation for later use.

f. The following erosion and pollution control materials are onsite:

i. A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
ii. An oil absorbing, floating boom is available on-site during all phases of construction. The boom must be of sufficient length to span the wetted channel.
iii. All temporary erosion controls (e.g., straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

g. All exposed or disturbed areas will be stabilized to prevent erosion.

i. Areas of bare soil within 45 meters of waterways, wetlands or other sensitive areas will be stabilized by native seeding[4], mulching, and placement of erosion control blankets and mats, if applicable, but within 14 days of exposure.

[4]By Executive Order 13112 (February 3, 1999), federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

ii. All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
iii. Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

h. All erosion control devices will be inspected during construction to ensure that they are working adequately.

i. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.
ii. If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
iii. Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.

i. If soil erosion and sediment resulting from construction activities is not effectively controlled, ODOT will limit the amount of disturbed area to that which can be adequately controlled.

j. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 12 centimeters. Catch basins will be maintained so that no more than 15 centimeters of sediment depth accumulates within traps or sumps.

k. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.

l. Any hazardous materials spill will be reported to NMFS.

i. In the event of a hazardous materials or petrochemical spill, immediate action shall be taken to recovery toxic materials from further impacting aquatic or riparian resources.
ii. In the event of a hazardous materials or petrochemical spill, a detailed description of the quantity, type, source, reason for the spill, and actions taken to recover materials will be documented. The documentation should include photographs.

m. The work bridges will have containment measures in place that minimizes any potential of petrochemicals or hazardous materials from entering the river.

i. The decking of the work bridge shall be constructed to self-contain petrochemicals and hazardous materials.
ii. The work bridges and the containment structure will be maintained to preserve containment integrity throughout the term of the project.

n. Refueling and hazardous materials

i. All staging and refueling shall occur at least 45 meters from the ordinary high-water mark, except as stated below.
ii. No auxiliary fuel tanks will be stored within 45 meters of the ordinary high-water mark.
iii. No hazardous materials will be stored on the work bridge.

4. To Implement Reasonable and Prudent Measure #4 (in-stream and riparian habitat loss), the COE will ensure that:

a. That there is no use of riprap below the OHW except that placed for scour protection around bents placed below the surface of the streambed and subsequently covered with at least a one- foot layer of river run gravels.

b. The distance between existing bridge approach fill and the 100 year flood plain or OHW (whichever is closer to the existing fill) will not be reduced.

c. Boundaries of the clearing limits associated with site access and construction will be flagged to prevent ground disturbance of riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

d. During excavation, native streambed material will be stockpiled out of the two-year flood plain and for later use in back-filling the trenches used to construct the coffer dams.

e. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area.

f. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration.

g. Temporary access roads will be designed as follows:

i. Temporary access roads will not cross streams.
ii. Alteration of existing native vegetation will be minimized in the construction, use, and maintenance of temporary access roads.

iii. Existing roadways or travel paths will be used whenever reasonable.
iv. Vehicles and machinery must cross riparian areas at right angles to the main channel wherever reasonable.
v. Temporary roads within 45 meters of streams will avoid, minimize and mitigate soil disturbance and compaction by clearing vegetation to ground level and placing clean gravel over geotextile fabric.
vi. No treated wood may be used within or above the ordinary high water mark.
vii. All cleared areas will be revegetated once construction is completed as described below in Term and Condition #6.

h. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the immediate work area.

i. Measures will be taken to prevent any construction debris from falling within the boundaries of the ordinary high water mark, waterway or wetlands. Any material that falls within this area will be removed in a manner that has a minimum impact to the riparian area, streambed and water quality.

5. To implement Reasonable and Prudent Measure # 5 (new impervious surface and stormwater management), above, the COE shall ensure that:

a. All stormwater runoff from any road or bridge built pursuant to a permit issued under this Opinion must be managed to ensure that it will not result in a change in the existing hydraulic conditions or an increase of pollutants to the receiving water.

b. Any project that will produce new surfaces or land use conversions that retard the entry of water into the soil must control the quantity and quality of the resulting stormwater runoff for the life of the project.

c. Permeable pavements should be installed and maintained for load-bearing surfaces other than bridge decking wherever soil, slope and traffic conditions allow.

d. Stormwater must be infiltrated or dispersed onsite to the maximum extent possible without causing flooding or erosion impacts.

e. When stormwater runoff must be discharged into a freshwater system, the following requirements apply.

i. The area must be drained by a conveyance system comprised entirely of manufactured elements (e.g., pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water.

ii. Any erodible elements of this system must be adequately stabilized to prevent erosion.

iii. Surface water from the area must not be diverted from or increased to an existing wetland, stream or near-shore habitat sufficient to cause a significant adverse effect.

iv. Runoff treatment facilities must be designed, built and maintained to collect runoff from the project site using the best available technology applicable to the site conditions. Treatment must be provided to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

6. To implement Reasonable and Prudent Measure #6 (site restoration and mitigation), above, the COE shall ensure that:

a. Restoration goal. The goal of habitat improvement through on-site restoration is renewal of habitat access, water quality, production of habitat elements (such as large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

b. All damaged areas will be restored to pre-work conditions. Damaged streambanks must be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation.

c. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation. Areas requiring revegetation must be replanted between October 15 and April 15 with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees.

d. No herbicide application will occur within 90 meters of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

e. No surface application of fertilizer will be used within 15 meters of any stream channel as part of this permitted action.

f. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

g. Plantings will achieve 100 percent survival after 1 year, and 80 percent survival or 80 percent ground cover after 5 years (including both plantings and natural recruitment). If the success standard has not been achieved after 5 years, the applicant will submit an alternative plan to the COE. The alternative plan will address temporal loss of function for the 5 years.

h. Mitigation sites. Long-term adverse effects will be avoided or offset after taking all appropriate steps to avoid or minimize adverse effects.

i. Actions of concern. The following actions require compensation for long-term adverse effects: Construction of new impervious surfaces inside the riparian buffer area[5] and other activities that prevent development of properly functioning condition of natural habitat processes.

ii. Mitigation at the proposed sites will be will be completed before the construction of the bridges is completed.

iii. Design review. The COE and NMFS shall review and approve the proposed designs to avoid or offset long-term adverse affects considering the following:

(1) Use of an ecosystem approach.
(2) Habitat requirements of the affected species.
(3) Productive capacity of the proposed construction and compensation site(s).
(4) Timing of the construction and compensation actions.
(5) Length of time necessary to achieve full functionality.
(6) Likelihood of success.
(7) Hydraulics at the site to determine the feasibility of the success of the mitigation.

iv. All plantings must occur before April 15 with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees.

v. No herbicide application will occur within 90 meters of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

vi. No surface application of fertilizer will be used within 15 meters of any stream channel as part of this permitted action.

vii. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

viii. Provide the COE with a five-year plan to:

[5] For purposes of this Opinion only, "riparian buffer area" means land: (1)Within 150 feet of any natural water occupied by listed salmonids during any part of the year or designated as critical habitat; (2) within 100 feet of any natural water within 1/4 mile upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an aboveground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat; and (3) within 50 feet of any natural water upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an aboveground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat. "Natural water" means all perennial or seasonal waters except water conveyance systems that are artificially constructed and actively maintained for irrigation.

(1) Inspect and, if necessary, replace failed plantings;
(2) Control invasive non-native vegetation;
(3) Protect plantings from wildlife damage and other harm.

ix. Provide the COE annual progress reports on the success of the mitigation sites.

i. All actions intended for streambank protection will also provide the greatest degree of natural stream and floodplain function achievable through application of an integrated, ecological approach.

j. Streambank protection treatments must be selected from options identified using the three treatment screening matrices described in WDFW et al. 2000.[6] A copy of the completed screening matrices must be included as part of the permit application.

k. Bioengineering Practices. Large wood will be included as an integral component of all streambank protection treatments. Avoid or minimize the use of rock, stone and similar materials.

i. Large wood must be intact, hard, and undecayed to partly decaying with untrimmed root wads to provide functional refugia habitat for fish. Use of decayed or fragmented wood found laying on the ground or partially sunken in the ground is not acceptable.
ii. Rock may be used as ballast to anchor or stabilize large woody debris components of a structural or biotechnical bank treatment or to construct a barb[7] as follows. The rock must be class 350 metric or larger, wherever feasible, but may not constrict the channel migration zone or impair natural stream flows into or out of secondary channels or riparian wetlands.
iii. Barb design. A barb will be constructed as follows, unless otherwise approved in writing by NMFS.

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[6] WDFW (Washington Department of Fish and Wildlife), Washington Department of Transportation, Washington Department of Ecology, and the U.S. Army Corps of Engineers, *Integrated Streambank Protection Guidelines*, various pagination (Draft) (October 30, 2000) (guidance on ecological approach to management of eroding streambanks) (http://www.wa.gov/wdfw/hab/ahg/ispgdoc.htm). Chapter 5, pages 5-4 through 5-7, describes the process of selecting bank protection methods using screening matrices based on the mechanism of bank failure, reach conditions, and habitat impacts; pages 5-7 through 5-19 provide additional information to support the choice of techniques.

[7] "Barb" means a low elevation projection from a bank, angled upstream to redirect flow away from the bank and control flow alignment and streambank erosion.

(1) No part of the barb structure may exceed bank full elevation, including all rock buried in the bank key.
(2) The barb must incorporate large wood.
(3) The trench excavated for the bank key above bankfull elevation must be filled with soil and topped with native vegetation.
(4) Maximum barb length must not exceed 1/4 of the bankfull channel width.
(5) Rock must be individually placed without end dumping.
(6) If two or more barbs are built in a series, the barb farthest upstream must be placed within 45 meters or 2.5 bankfull channel widths, whichever is less, from the barb farthest downstream.
(7) Woody riparian planting must be included as a project component.

7. To implement Reasonable and Prudent Measure #7 (monitoring and reporting), above, the COE shall ensure that:

a. Within 90 days of completing the construction projects and within 90 days of completing the mitigation projects, the COE/ODOT will submit a monitoring report to NMFS describing the success meeting their permit conditions. This report will consist of the following information:

i. Project identification

(1) Project name and project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
(2) Starting and ending dates of work completed for this project;
(3) the COE contact person.
(4) Monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: OSB2002-0012-FEC
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

ii. Stormwater management plan. A report analyzing the impacts of the stormwater generated by the new impervious surface and how it impacts the hydrology and water quality downstream of the project site.
iii. Isolation of in-water work area. A report of any seine and release activity including:

(1) The name and address of the supervisory fish biologist
(2) Methods used to isolate the work area and minimize disturbances to ESA-listed species

(3) Stream conditions before and following placement and removal of barriers
(4) The means of fish removal
(5) The number of fish removed by species
(6) The location and condition of all fish released
(7) Any incidence of observed injury or mortality.

iv. Pollution and erosion control. Copies of pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

v. Site restoration. Documentation of the following conditions:

(1) Finished grade slopes and elevations
(2) Log and rock structure elevations, orientation, and anchoring, if any
(3) Planting composition and density
(4) A plan to inspect and, if necessary, replace failed planting and structures for five years.

vi. A narrative assessment of the project's effects on natural stream function.

vii. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.

(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

viii. Post construction impacts. The COE/ODOT shall assess the project's impacts, temporary and permanent, and compare them to the impacts assessed in the biological assessments. This written assessment will be provided to NMFS for review. If the actually impacts exceed those outlined in the BAs then the COE/ODOT will provide additional mitigation to offset those impacts.

ix. Other data. Additional project-specific data, as appropriate for individual projects.

(1) Work cessation. Dates work cessation was required due to high flows.
(2) Fish screen. Compliance with NMFS' fish screen criteria.
(3) Site preparation.

   (a) Total cleared area – riparian and upland.
   (b) Total new impervious area.

(4) Streambank protection.

   (a) Completed screening matrices used to select treatments.
   (b) Type and amount of materials used.
   (c) Project size – one bank or two, width and linear feet.

(5) Site restoration.

   (a) Finished grade slopes and elevations.
   (b) Log and rock structure elevations, orientation, and anchoring (if any).
   (c) Planting composition and density.

3. MAGNUSON - STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in federal fishery management plans. In addition, the MSA requires federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: 'Waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a

sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed in Section 1.2, Proposed Action. The action areas are defined as the channel and adjacent riparian area from about 400 meters upstream from the project and mitigation sites and downstream 400 meters. These areas have been designated as EFH for various life stages of coho and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in Section 1.5, Analysis of Effects, the proposed activities may result in detrimental short-term adverse effects to a variety of habitat parameters. These impacts include: Increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation and the potential for pollutants to enter the water.

3.6 Conclusion

After reviewing the current status of the listed species, the environmental baseline for the action areas, the effects of the proposed bridge replacements, and cumulative effects, NMFS has determined that the Coast Fork Willamette Bridge Replacement Project and the Lower Perry Interchange Bridges Replacement Project, as proposed, may adversely affect the EFH for Pacific salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the COE in the BA's and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 of this biological opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 90 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The COE must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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